

Geometry (G.CO.11)

Unit One B: Special Parallelograms (IC44)

Name: _____

Date: _____ Period: _____

The following special quadrilaterals are all **parallelograms**.

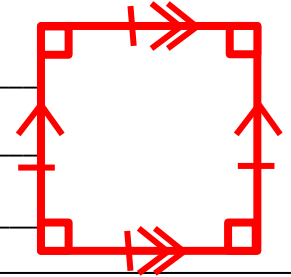
Rectangle: a quadrilateral with four right angles.

Rhombus: a quadrilateral with four congruent sides.

Square: a quadrilateral with four congruent sides and four right angles.

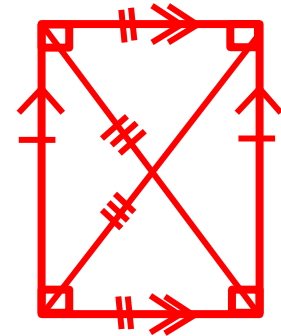
Properties of a square.

1. All parallelogram properties
2. All rectangle properties
3. All rhombus properties



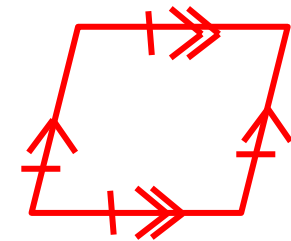
Properties of a rectangle.

1. All parallelogram properties
2. 4 right angles
3. \cong diagonals



Properties of a rhombus.

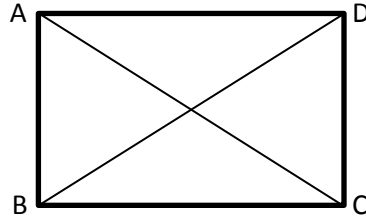
1. All parallelogram properties
2. 4 \cong sides
3. Perpendicular diagonals
4. Diagonals bisect opposite angles



Diagonals of a rectangle are congruent.

Given: Rectangle ABCD

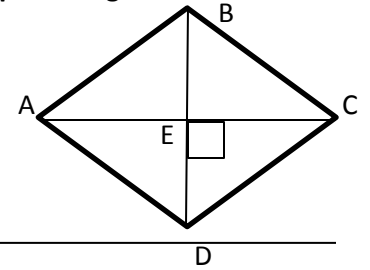
Prove: $\overline{AC} \cong \overline{BD}$



If diagonals of a parallelogram are \perp , then the parallelogram is a rhombus.

Given: Parallelogram ABCD; $\overline{AC} \perp \overline{BD}$

Prove: $\overline{AB} \cong \overline{BC}$



Statements	Reasons
1) Rectangle ABCD	1) Given
2) $\overline{AD} \cong \overline{AD}$	2) Reflexive Prop
3) $\overline{AB} \cong \overline{DC}$	3) Rect \rightarrow opp sides \cong
4) $\angle A$ & $\angle D$ are rt \angle s	4) Rect \rightarrow all 4 right angles
5) $\angle A \cong \angle D$	5) All rt. \angle s \cong
6) $\triangle BAD \cong \triangle CDA$	6) SAS

Statements	Reasons
1) $\overline{AC} \perp \overline{BD}$	1) Given
2) $\angle 1, \angle 2, \angle 3, \angle 4$ right \angle s	2) Def of \perp
3) $\angle 1 \cong \angle 2 \cong \angle 3 \cong \angle 4$	3) All rt. \angle s \cong
4) Parallelogram ABCD	4) Given
5) $\overline{AE} \cong \overline{EC}, \overline{BE} \cong \overline{DE}$	5) //gram \rightarrow diag bisect each o
6) $\triangle ABE \cong \triangle CBE \cong \triangle CDE \cong \triangle ADE$	6) SAS
7) $\overline{AD} \cong \overline{CD} \cong \overline{BC} \cong \overline{AB}$	7) CPCTC
8) ABCD is rhombus	8) def of rhombus